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United States
Environmental Protection
Agency

Region 5
Office of Public Affairs
77 West Jackson Boulevard
Chicago, Illinois 60604

Illinois Indiana
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EPA

PROPOSED PLAN FOR REMEDIAL ACTION

American Chemical Services Superfund Site
Griffith, Indiana June 1992

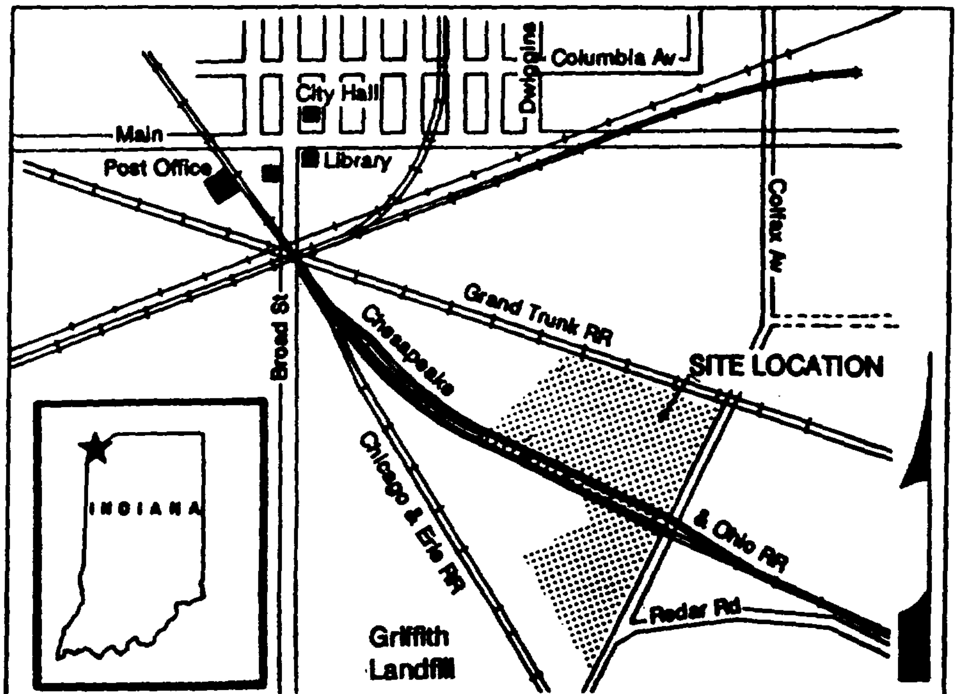

Figure 1, Site Location Map

➤ PUBLIC COMMENT PERIOD

June 30 - July 29, 1992

EPA invites the public to submit comments on remedial alternatives (possible cleanup options) considered for the American Chemical Services Superfund site and on the alternative recommended by EPA. Comments will be accepted orally or in writing at the public meeting (see below), or may be mailed (postmarked by July 29, 1992) to Karen Martin, Community Relations Coordinator (address listed on page 8).

➤ PUBLIC MEETING

Thursday, July 9, 1992
7:00 p.m.
Griffith Town Hall
111 North Broad Street
Griffith, Indiana

Words in bold type are defined in a glossary on pages 8 and 9. *Documents identified in bold, italicized type* are available for review in the two information repositories (locations, see page 8 of this fact sheet).

➤ INTRODUCTION

This fact sheet describes the U.S. Environmental Protection Agency's (EPA's) recommended remedial alternative and the other options considered for controlling contamination at the American Chemical Services (ACS) Superfund site in Griffith, Indiana. Included are summaries of the background and history of the site, investigation activities and results to date, and a summary of the ***Feasibility Study*** (FS), recently completed.

This proposed plan summarizes information available in the ***Remedial Investigation*** (RI) report and the FS, as well as other documents found in the Administrative Record file for the site (see "For More Information" for locations).

Section 117 (a) of the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) requires that the public be notified of the remedial alternatives being considered for site contamination and the remedy recommended by EPA and the Indiana Department of Environmental Management (IDEM). This fact sheet, along with the public meeting to be held on July 9, 1992, relays the key elements of the FS and EPA's recommended alternative. The public is encouraged to review documents available in the Administrative Record and to submit comments on all the alternatives presented in the proposed plan for the ACS site. Comments made by the public will be addressed in a document called a Responsiveness Summary and evaluated when selecting the remedy for the site. EPA will select a final remedy for the site only after the public has had an opportunity to comment on the proposed plan, and the comments have been reviewed and considered.

The Responsiveness Summary will be attached to the Record of Decision, EPA's document describing the chosen alternative.

SITE BACKGROUND

The American Chemical Services Superfund site, located at 420 S. Colfax Ave., Griffith, (Fig. 1), includes ACS property (19 acres), Pazmey Corp. property (formerly Kapica Drum, Inc.; two acres) and the inactive portion of the Griffith Municipal Landfill (approximately 15 acres) (Fig. 2). ACS began as a solvent recovery facility in May 1955, exclusively reclaiming solvents until the late 1960s. Reclaimed during this period were solvent mixtures containing volatile organic compounds (VOC's), alcohols, ketones, and other organic compounds which contained various residues. Kapica Drum, Inc., began operations reconditioning 55-gallon drums in 1951 and began picking up drums from ACS in 1955.

In the late 1960s and early 1970s, small batches of chemicals were manufactured at ACS. Specific chemicals manufactured include barium naphtherate, brominated vegetable oil, lacquers and paints, liquid soldering fluid, and polyethylene solutions in polybutene. These early manufacturing operations also included bromination, treating rope with a fungicide, and treating ski cable.

Two on-site incinerators burned still bottoms, non-reclaimable materials generated from the site, and off-site wastes. The first incinerator started operating in 1966, the second in 1969, and burned about two million gallons of industrial waste per year. The incinerators were dismantled in the 1970s. The shells were cut up and scrapped; the burners and blowers remain on site.

Batch manufacturing was expanded between 1970 and 1975. Additives, lubricants, detergents, and soldering flux were manufactured, and an epoxidation plant created a product called a plasticizer.

Since 1975, the small batch manufacturing and epoxidation plant operations have remained essentially the same. Kapica Drum, Inc., was sold to Pazmey Corp. in February 1980, which sold it to Darija Djurovic in March 1987. Kapica Drum/Pazmey has not operated since 1987. In 1980, a 31-acre parcel of property to the west of the off-site containment area was sold to the City of Griffith for an expansion of the City's municipal landfill. The Griffith Municipal Landfill has been an active sanitary solid waste disposal facility since the 1950s. Solvent recovery operations at ACS continued until 1990 when ACS

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lost interim status under Resource Conservation and Recovery Act (RCRA) regulations due to an EPA enforcement action. Semi-volatile organic compounds (SVOC's) such as phenol, isophorone, napthalene, fluorene, phenanthrene, anthracene, bis (2-chloroethyl) ether, and phthalates were used and discarded at the site throughout its history.

A fact sheet, dated September 1990, summarizes RCRA activities at the site.

ACS was placed on the National Priorities List (NPL), a roster of the nation's worst hazardous waste sites targeted for cleanup under Superfund authority, in September 1984. Approximately 400 drums containing sludge and semi-solids

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of unknown types were reportedly disposed of in an on-site containment area (see Fig. 2). The off-site containment area was utilized principally as a waste disposal area and received wastes that included on-site incinerator ash, general refuse, a tank truck containing solidified paint, and an estimated 20,000 to 30,000 drums that were reportedly punctured prior to disposal. The Still Bottoms Pond and Treatment Lagoon #1 received still bottoms from the solvent recovery process. The pond and lagoon were taken out of service in 1972, drained, and filled with drums containing sludge materials. A Consent Order to perform a remedial investigation/feasibility study was signed by the Potentially Responsible Parties (PRP's) in June 1988. The remedial investigation began in 1989.

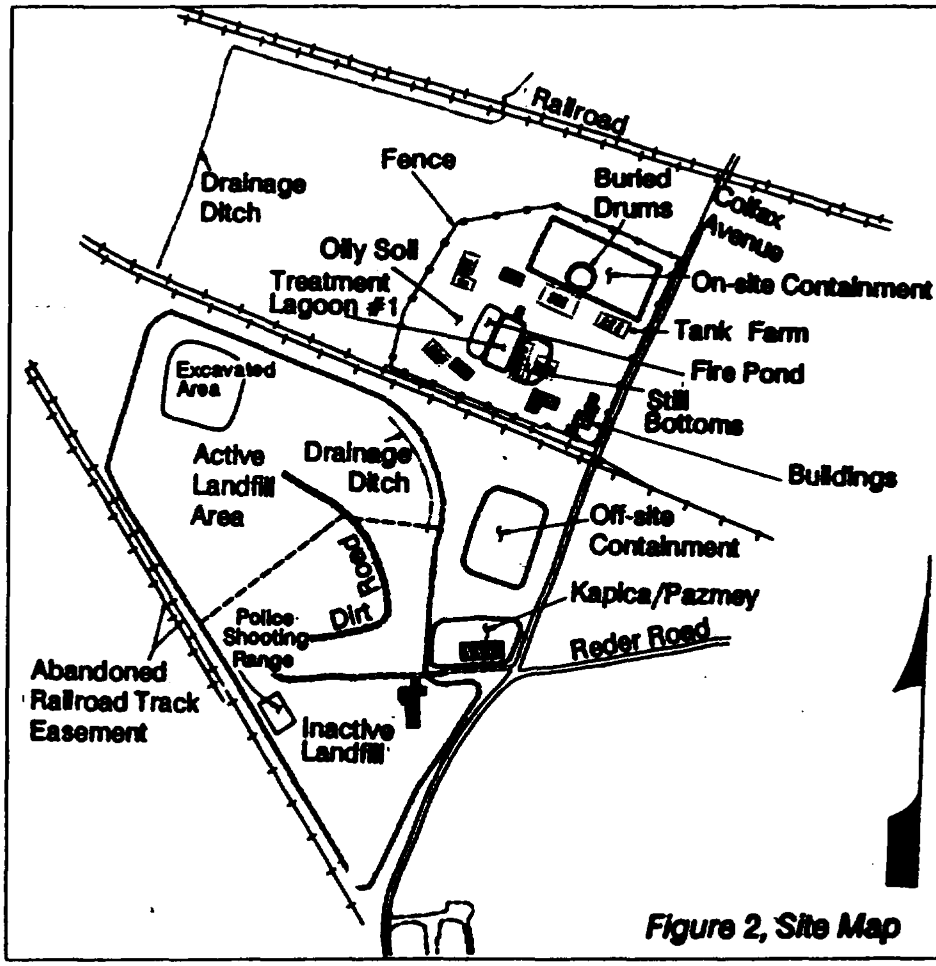

Figure 2, Site Map

SUMMARY OF SITE RISKS

A major component of the RI was to assess potential risks to public health and the environment if the ACS site is not cleaned up. This component is called a baseline risk assessment. Using information about what contaminants are present at the site, as well as the concentrations, amounts, locations, and ability of contaminants to travel off site, a risk assessment was developed to determine what, if any, risks are posed by the site and if remedial action is warranted. Forty-four chemicals were chosen as being representative of the con-

Continued on page 3.

SUMMARY OF SITE RISKS

Continued from page 2.

tamination at ACS. The risk assessment indicates that current site risks (primarily through airborne contaminants) are unacceptable. When the risk assessment indicates that site risk to an individual exceeds EPA's accepted risk range, remedial action is warranted at the site.

While EPA's estimates of risk are very conservative (they assume prolonged, regular, and massive exposure to contaminants), the risk levels at ACS are not acceptable to EPA.

The risk assessment also evaluated potential health risks if the contamination were not addressed and if the site were developed for residential use. This future-use scenario showed that future on-site residents could be exposed to an increased cancer risk, as well as other adverse health effects. Readers should understand this scenario is used only to measure risk. The unremediated site would not be developed for human use because of the levels of contamination found there.

Detailed results and interpretations are presented in the Baseline Risk Assessment, Volumes 1, 2, and 3, September 1991, found in the RI Report, Section 7.

ECOLOGICAL RISKS

An ecological assessment to evaluate negative effects on plants and animals was performed for the area surrounding the ACS site. Based on this assessment upland (terrestrial), wetland, and aquatic receptors may be negatively affected by contaminants present in soils and surface water within the ACS vicinity. As with the risk assessment, conservative assumptions were used throughout this ecological assessment.

Detailed results and interpretations are presented in the Ecological Assessment of the RI Report, September 1991, Section 7.2.

REMEDIAL INVESTIGATION RESULTS

Data for the RI report were collected during three phases and a Supplemental Technical Investigation (STI). The general purpose of Phase I was to identify each zone of contamination so that a more focused investigation could be implemented.

Phase I of the RI was completed in December 1989. Phase I indicated that there were large areas of buried debris with a wide range of contaminants. The upper-aquifer ground-water contamination was found to extend in several directions from the site.

The on-site containment source-area contaminants consist predominately of organic contaminants without polychlorinated biphenyl (PCB's). Additional areas of concern consist of a buried drum area, and localized areas of organic contaminants with PCB's and soils contaminated with metals.

The still bottoms/treatment lagoon and adjacent source-area contaminants consist predominantly of organic contaminants without PCB's and randomly distributed buried drums. Organic contaminants with PCB's were not detected in the treatment lagoon area, but were detected in the still bottoms area.

Metals were detected in both areas. In an adjacent area, west of the existing fire pond, organic contaminants with and without PCB's were detected.

The off-site containment source-area showed a predominance of organic contaminants without PCB's. However, organic contaminants with PCB's and metals were detected primarily in one area in the northern portion, and at a number of small areas in the southern portion. An estimated 20,000 to 30,000 drums of general refuse, and a tank truck partially full of solidified paint were reportedly disposed of in this area. The Kapica/Pazmey source-area contaminants were found in an area north of the Kapica building. Metal contamination was found to the west and north of the Kapica building.

Organic contaminants without PCB's, including chlorinated ethanes, partially water-soluble products from gasoline, oil, and/or other hydrocarbon products (e.g. benzene, toluene, xylene) were found in the upper aquifer. Lower-aquifer contamination is limited (compared to the upper aquifer), both with respect to the nature of compounds detected and the extent. Contaminants do not extend off site to lower-aquifer wells. No organic contaminants were detected at any private residential well.

A discussion of the nature and extent of contamination can be found in Section 5 of the RI Report. A detailed list of contaminants and concentrations can be found in Appendix R of the RI Report.

FEASIBILITY STUDY

The purpose of the remedial action is to clean up all buried-waste source areas, contaminated soils, and ground water. This action will protect residents from health risks related to contact with contaminated ground water, soil, or possible air emissions from buried wastes.

EPA's overall goals at ACS are to adequately protect human health and the environment, and to reduce the release of contaminants into the environment. *These goals are detailed in the Feasibility Study, pages 2-1 through 2-3.* In summary, they are:

- to ensure that public health and the environment are not exposed to cancer and non-cancer risks from drinking water, soils, buried drums/liquid wastes/sludges, or other substances from the landfill;
- to restore ground water to applicable State and Federal standards;
- to reduce the spread of contaminants off site through water, soils or other media;
- to reduce the potential for erosion and possible spread of contaminants via site surface water and sediments, including areas surrounding Turkey Creek.

REMEDIAL ACTION ALTERNATIVES

In order to accomplish its goals, EPA examined eight remedial alternatives. There are nine specific criteria (see "EPA's Nine Evaluation Criteria" on page 6) that the EPA must use to analyze all of the alternatives. Based on the analysis of each alternative against these criteria, EPA recommends the one that represents the best balance between the criteria and the remedial objectives. The following is a brief explanation of the alternatives considered.

Common elements of all alternatives, except No Action (Alternative 1) include: continued monitoring and eventual closure of the Griffith Municipal Landfill; a ground-water pumping and treatment system; controlled discharge of treated ground water to wetlands and/or ground-water reinjection; ground-water monitoring for at least 30 years; deed restriction; fencing; and possible well closures to reduce the potential for human exposure.

Alternative 1: No Action

CERCLA requires that a "No Action" alternative be considered, against which all other alternatives are compared. Under this alternative, no remedial action would take place and the site would remain in its present condition. All contamination would remain in the source areas, ground water and soils, with continued potential for entering water supplies. The Griffith Municipal Landfill would continue to operate under State law. Every five years a review would be performed to evaluate the site's threat to public health and the environment.

Present Net Worth (PNW) of Alternative 1: $ 0
Time to complete: 0
Quantity of waste treated: 0
Quantity of soil treated: 0

Alternative 2: Containment with slurry wall; on-site ground-water gradient control; ground-water pumping and treatment outside slurry wall; and covering contaminated surface soils.

Alternative 2 provides for the construction of a slurry wall around the entire site to minimize off-site contaminant migration and impede ground-water flow into the site. Inward ground-water gradients would be maintained by pumping from within the slurry wall. Ground-water pumping and treatment would be performed outside the slurry wall to prevent off-site migration. Treated ground water would be discharged or reinjected to the wetlands to prevent dewatering. Contaminant source areas would be covered with a RCRA cap. Operational areas of the ACS facility could be covered with asphalt or concrete.

PNW of Alternative 2: $ 12,000,000
Total time to complete construction: 1 year
Operation and maintenance period: 30 years
Quantity of waste treated: 0
Quantity of contaminated soil treated: 0

Alternative 3: Dewatering of on-site areas; excavation and (a) on-site incineration of buried waste or (b) on-site low-temperature thermal treatment of buried waste.

Alternative 3 provides for site dewatering using a series of ground-water pumping wells to allow excavation of buried wastes. Excavated wastes would be treated with an on-site incinerator (3a) or with a low-temperature thermal treatment unit (3b). Treatment residuals would be placed back into the excavation. An infiltration basin would be constructed over each source area in order to use treated ground water to flush contaminants.

PNW of Alternative 3a: $ 54,800,000
PNW of Alternative 3b: $ 45,100,000
Total time to complete source treatment: 3 years
Quantity of waste treated: 35,000 - 66,000 cubic yards
Quantity of contaminated soil treated: 0

Alternative 4: In-situ steam stripping of buried waste, soils, and ground water.

Alternative 4 would simultaneously treat buried wastes, soil and on-site ground water at the site. In-situ (in place) steam stripping consists of injecting steam at approximately 400 degrees farenheit through specially designed hollow-stem augers which are moved vertically through the unsaturated and saturated zones. PCB-contaminated surface soils would either be treated in-situ or excavated for off-site landfilling.

PNW of Alternative 4: $ 50,900,000
Total time to complete treatment: 10-20 years
Quantity of waste and soil treated: 135,000 cubic yards

Alternative 5: Off-site incineration of buried drums; off-site disposal of miscellaneous debris; in-situ vapor extraction of buried waste and soils.

Alternative 5 provides for site dewatering using a series of ground-water pumping wells to allow for excavation of intact drums and miscellaneous debris. Intact drums would be incinerated off site while miscellaneous debris would be landfilled off site. PCB-contaminated surface soils would either be treated in-situ or excavated for off-site landfilling. Up to four in-situ vapor extraction (ISVE) systems would then be installed to treat both soils and buried wastes. A cover would be placed over unpaved surfaces in the areas to increase the efficeacy of the ISVE system and to reduce rainwater infiltration. A pilot-scale test would first need to be conducted to demonstrate the overall effectiveness of ISVE on materials with such high contaminant levels.

PNW of Alternative 5: $33,000,000
Total time to complete treatment: 5 - 20 years
Quantity of waste and soil treated: 135,000 cubic yards

Alternative 6: On- or off-site incineration of buried drums; off-site disposal of miscellaneous debris; (a) on-site incineration of waste, or (b) low-temperature thermal treatment of waste; and in-situ vapor extraction of soils.

Alternative 6 provides for site dewatering using a series of ground-water pumping wells to allow for excavation of intact drums and miscellaneous debris. Intact drums would be incinerated on site (6a) or off site (6b), while miscellaneous debris would be landfilled off site. Areas designated as buried wastes or PCB-contaminated soils would either be incinerated on site (6a), or treated with low-temperature thermal treatment (6b). Treatment residuals would be deposited back into the excavations. An in-situ vapor extraction (ISVE) system

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would then be installed to treat contaminated soils. Partial installation of a ISVE system could begin following the completion of site dewatering in areas which are not impacted by buried-wastes excavation activities. A cover would be placed over unpaved surfaces in the areas that require ISVE to prevent short-circuiting of air from the surface and to reduce rain-water infiltration. A pilot-scale test would need to be conducted to demonstrate the overall effectiveness of ISVE on materials with such high contaminant levels.

PNW of Alternative 6a: $ 43,100,000 to $ 56,600,000
PNW of Alternative 6b: $ 37,800,000 to $ 46,800,000
Time to complete treatment: 6 - 8 years
Quantity of waste treated: 35,000 - 65,000 cubic yards
Quantity of soil treated: 70,000 - 100,000 cubic yards

Alternative 7: On- or off-site incineration of buried drums; off-site disposal of miscellaneous debris; (a) on-site incineration of buried wastes and soils or (b) on-site low-temperature thermal treatment of buried wastes and soils.

Alternative 7 provides for site dewatering using a series of ground-water pumping wells to allow for excavation of intact drums and miscellaneous debris. Intact drums would either be incinerated on site (7a), or off site (7b). Miscellaneous debris would be taken off site for landfilling. Buried wastes and contaminated soils would be incinerated on site (7a) or treated on site through low-temperature thermal treatment (7b). Treatment residuals would be deposited back into the excavations.

PNW of Alternative 7a: $84,600,000
PNW of Alternative 7b: $64,400,000
Time to complete treatment: 2 - 6 years
Quantity of waste and soils treated: 135,000 cubic yards

Alternative 8: Off-site incineration of buried drums; off-site disposal of miscellaneous debris; (a) landfarming of buried waste and soils or (b) slurry-phase bioreactor treatment of buried waste and soils.

Alternative 8 provides for site dewatering using a series of ground-water pumping wells to allow for excavation of buried wastes, contaminated soils, intact drums and miscellaneous debris. Intact drums would be incinerated on site. Miscellaneous debris will be taken off site for landfilling. Buried wastes and contaminated soils will be treated on site through biological treatment. Biological treatment would be accomplished by land-farming (8a), or by slurry-phase bioreactors (8b). Treated soils would be deposited back into excavations. Because it is not known if biological treatment would attain appropriate treatment levels, a pilot study would be necessary to evaluate the effectiveness of the technology at ACS.

PNW of Alternative 8a: $ 34,200,000
PNW of Alternative 8b: $ 43,200,000
Time to Complete treatment: 8 - 15 years (8a); 5 years (8b)
Quantity of waste and soils treated: 135,000 cubic yards

Section 3.7 of the FS report addresses remedial alternatives available for the known sources of contamination. Section 4 provides a detailed analysis of the remedial action alternatives.

EPA'S EVALUATION CRITERIA

EPA will select a remedy (a cleanup plan) for site contamination after looking at each alternative according to the following criteria:

(1) Overall protection of public health and the environment. (To what degree does the cleanup option eliminate, reduce or control threats to public health and the environment?)

(2) Compliance with Applicable or Relevant and Appropriate Requirements (ARARs). (Does the remedy meet state and federal environmental and other regulations?)

(3) Implementability. (How difficult will the remedial alternative be to build and operate? Is the required technology available?)

(4) Short-term effectiveness. (How long will it take to design and implement the remedy? Will short-term risks to the community, the environment and site workers be mitigated?)

(5) Long-term effectiveness. (Will the remedial alternative be reliable in protecting public health and the environment over many years?)

(6) Reduction of contaminant toxicity, mobility and volume. (How well does the alternative reduce the harmful nature of the contaminants, prevent them from moving off site, and decrease the levels of contamination?)

(7) Cost. (The selected remedy must be cost effective. How will the remedy provide overall effectiveness proportional to its costs?)

(8) State acceptance. (Does IDEM support or oppose EPA's proposed remedial alternative?)

(9) Community acceptance. (Have comments from the public been addressed? Does the public support or oppose the plan?)

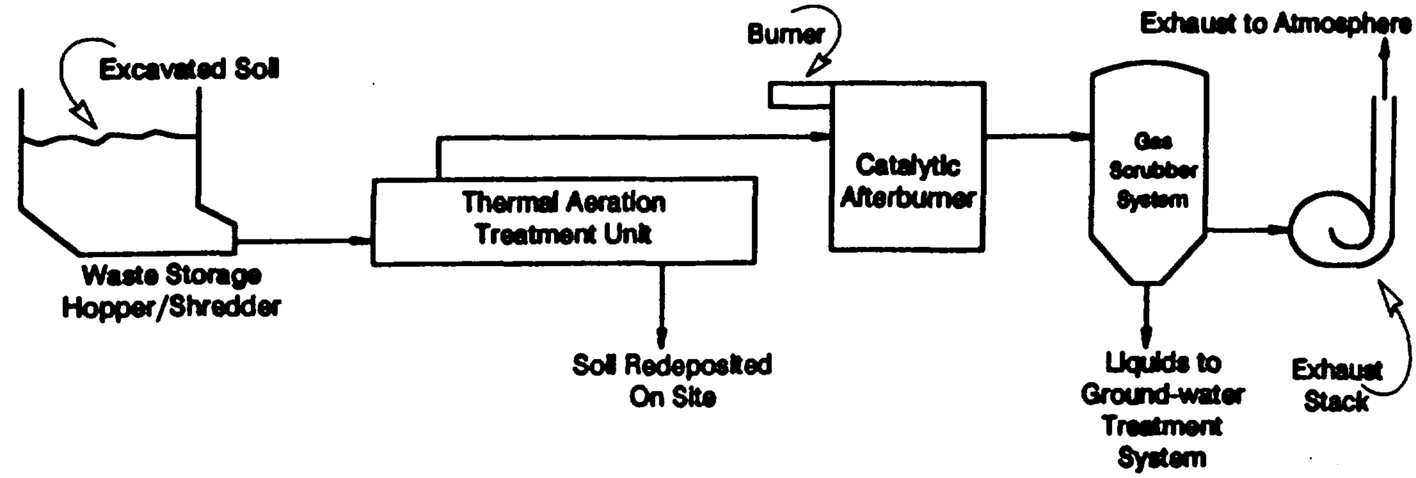

Figure 3, On-site Low Temperature Thermal Treatment Schematic

Of the eight alternatives considered for the ACS site, EPA recommends Alternative 6b as the remedy. (NOTE: For a list of the eight alternatives considered by EPA, please see pages 4-5.)

Alternative 6b Recommended Remedy: off-site incineration of intact buried drums; off-site disposal of miscellaneous debris; in-situ vapor extraction of contaminated soils; in-situ vapor extraction pilot project for On-site Containment Area buried wastes; on-site low-temperature thermal treatment of Off-site Containment Area buried wastes (with vapor emissions control during excavation and possible stabilization after treatment); ground-water pumping and treatment; controlled discharge of treated water to wetlands; and continued monitoring of wetlands. The Griffith Municipal Landfill will eventually be closed under State law.

Alternative 6b requires excavation and low-temperature thermal treatment of buried wastes. Vapor emissions would be contained during excavation and residuals would be deposited back into the excavations after meeting appropriate treatment levels. As a supplement to Alternative 6b, a pilot study to determine the effectiveness of ISVE on buried waste material would be conducted in the on-site area. This pilot study would be conducted in conjunction with the in-situ soil vapor extraction system

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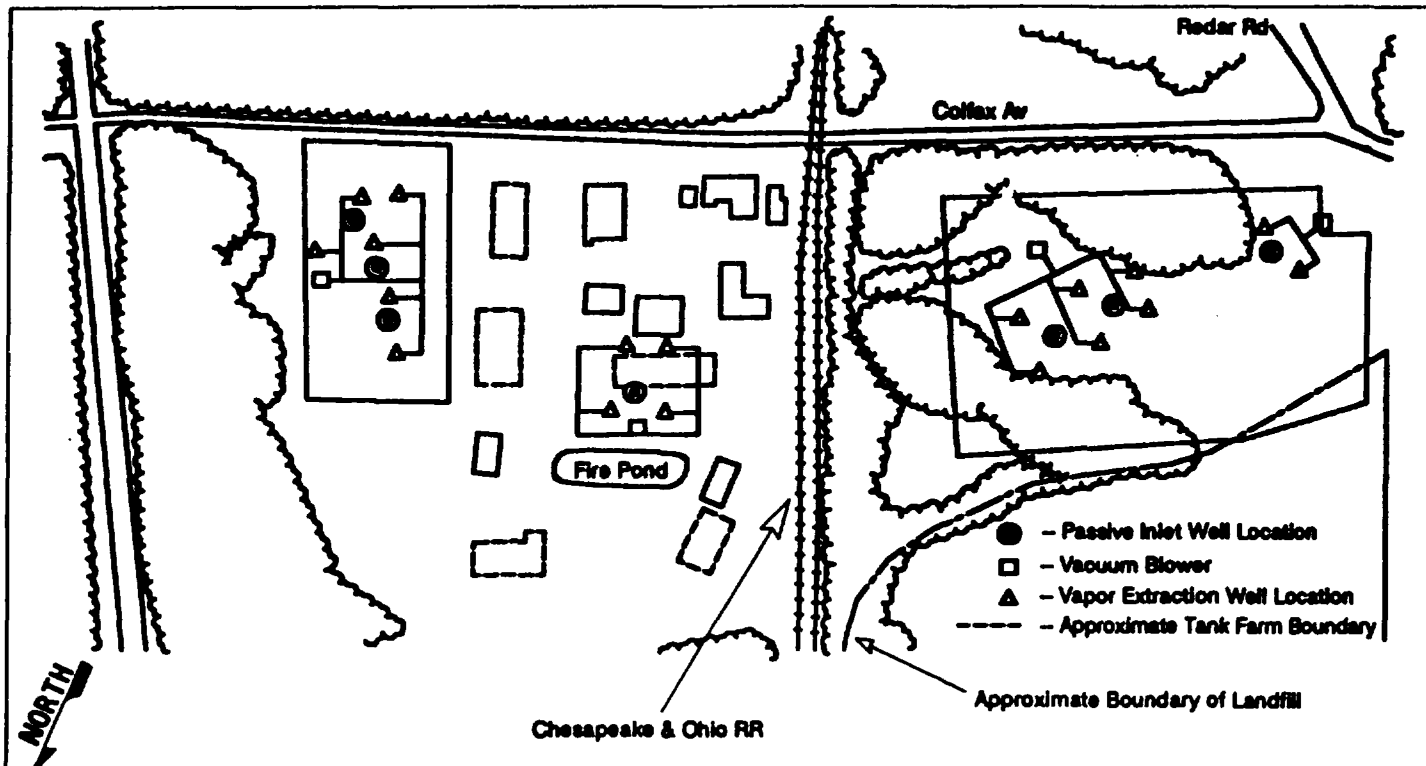

Figure 4, Soil Vapor Extraction Treatment System

EPA'S RECOMMENDED REMEDY

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to be developed for all contaminated site soils and would have a defined proof-of-performance period. At the end of the performance period, it would be determined by EPA if in-situ soil vapor extraction is adequately working on buried waste. If the technology is effective then it could be expanded to unremediated portions of the on-site area. If the technology is not effective then low-temperture thermal treatment (LTTT) would be used for buried wastes at the ACS site. Regardless of the pilot study results, LTTT for buried wastes from the off-site area would be implemented and completed.

Implementation of an unproven technology through pilot testing on a contaminant matrix and scale found at the ACS site may provide valuable data for remediation of future sites. Because LTTT would be implemented in the off-site area, no time would be lost in the overall remediation of this site (if ISVE on buried wastes proves ineffective). It should be noted that this recommended remedy is preliminary and could change as a result of public comments or new information.

A detailed examination of how Alternative 6b complies with EPA's nine evaluation criteria can be found in Section 5 of the FS. For a comparative analysis of the nine criteria for this and the other alternatives, see page # of this fact sheet.

Alternative 6b would cost $21.6 to $30.6 million to construct and $16.2 million to operate and maintain (over a 30-year period), reflecting a PNW cost of $37.8 to $46.8 million. It would take from 6 to 8 years to complete. Ground-water monitoring would continue for at least 30 years.

In Summary

EPA prefers Alternative 6b because it provides the best balance of tradeoffs with respect to the nine criteria. EPA believes the preferred alternative will meet the requirements of CERCLA to be protective of human health and the environment, attain ARARs, be cost-effective, use permanent solutions and alternative treatment technologies to the maximum extent practicable, and satisfy the statutory preference for treatment as a principal element.

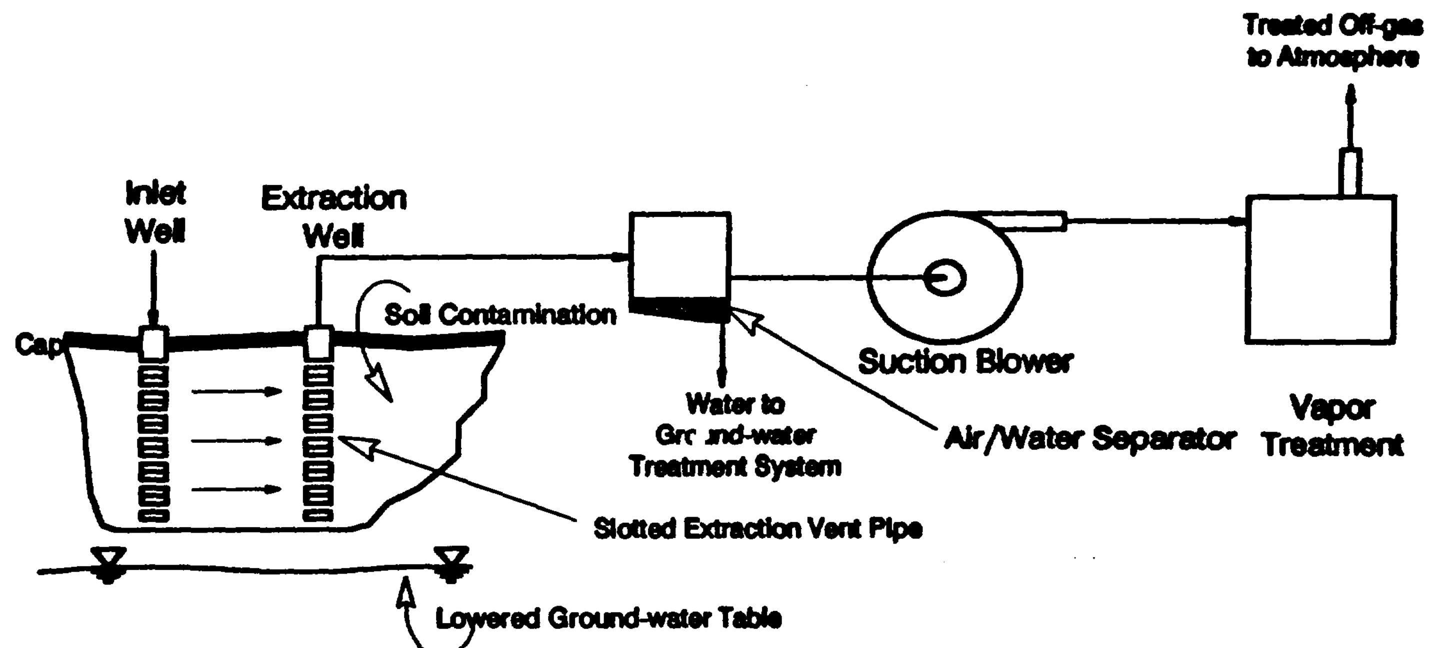


Figure 5, In-situ Soil Vapor Extraction Schematic

PUBLIC INVOLVEMENT

EPA invites the public to comment on alternatives discussed as potential remedies for contamination of the American Chemical Services Superfund site. These comments will be addressed and evaluated in the selection process of the remedy. A summary of all comments and EPA's responses will be contained in the Responsiveness Summary, which will be attached to the Record of Decision, a document outlining the final choice for a remedy.

Comments may be presented orally or in writing at the public meeting (see page 1 of this fact sheet for date, time and place). Or, comments may be mailed to Karen Martin, Community Relations Coordinator, at the address listed on page 8.

Mailed comments must be postmarked by July 29, 1992.

FOR MORE INFORMATION

Public information repositories have been established at the Griffith Town Hall, 111 N. Broad St., and the Griffith Public Library, 940 N. Broad St. Technical and other documents are sent there, and the public is welcome to review them. The Administratve Record File, which contains the information upon which the selection of the remedy will be based, is also available at the Griffith Town Hall, and at EPA Region 5 offices.

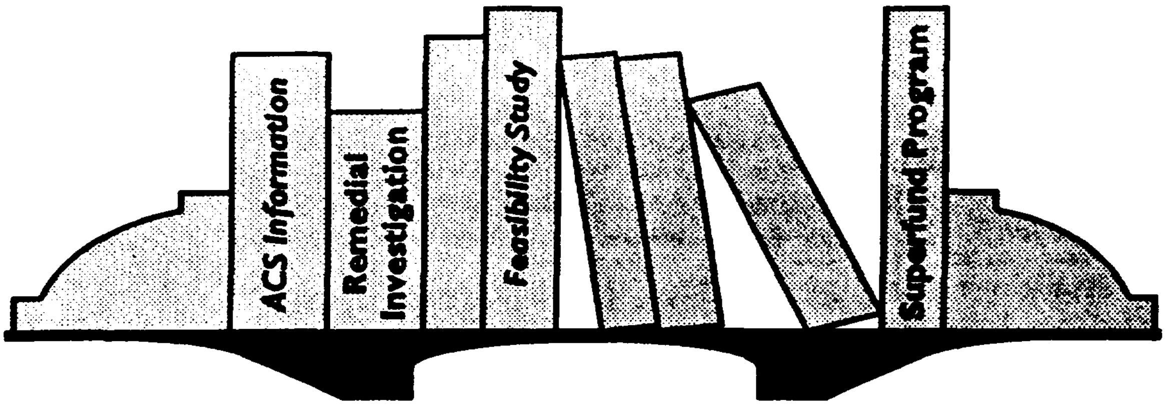
You may also contact the following EPA personnel:

Karen Martin (PS-19J)
Community Relations Coordinator
(312)886-6128

Wayde Hartwick (HSRL-6J)
Remedial Project Manager
(312)886-7067

U.S. Environmental Protection Agency
77 West Jackson Boulevard
Chicago, IL 60604

Toll free (9-4:30 central time): (800)621-8431



GLOSSARY

Aquifer - a zone or layer of rock, soil, sand or other porous material, found below the ground surface, that is capable of holding and yielding usable quantities of water; often a main source of drinking water.

Hydrocarbon - an organic chemical compound made up primarily of hydrogen and carbon; usually an oil-type product.

Ketones - compounds found in resins, paint removers, cement adhesives, and cleaning fluids.

Land-farming (of waste) - a treatment and/or disposal process in which hazardous or nonhazardous waste deposited on or in the soil is naturally degraded by microbes (microorganisms).

Low-temperature thermal treatment - a technology that provides evaporation of VOC's but does not require heating the soil to combustion temperatures. An indirect heat exchanger is used to dry and heat the contaminated soils up to 450 degrees Fahrenheit which strips the VOC's from the soil. Once the VOC's are vaporized they can either be destroyed through high temperature incineration in an afterburner. or recovered through an activated carbon system.

Metal - heavy metal - a family of inorganic elements that include arsenic, lead, chromium, cyanide, mercury, zinc, and others; heavy metals can be toxic at relatively low concentrations

Organic compounds - Chemicals composed mainly of carbon, hydrogen and oxygen, and found in materials such as solvents, soils and pesticides; they may be toxic when ingested, inhaled, or absorbed through skin contact.

Plasticizer - a compound associated with plastics and plastic-making processes.

Polychlorinated biphenyl (PCB) - a family of organic compounds used since 1926 in electric transformers as insulators and coolants, in lubricants, carbonless copy paper, adhesives and caulking compounds. PCB's are extremely persistent in the environment because they do not break down into less harmful chemicals. They are stored in human and animal fatty tissues. Long-term exposure can cause liver damage and has been shown to cause cancer in laboratory animals.

Potentially responsible parties (PRP's) - those persons, companies or other legal entities that could be held liable for study and clean-up costs of a Superfund site; they include owners, operators, generators and haulers of hazardous waste.

Present Net Worth (PNW) - an economic term used to describe today's cost for a Superfund cleanup and reflect the discounted value of future costs. A present worth cost estimate includes construction, and future operation and maintenance costs. U.S. EPA uses present net worth values when calculating the cost of alternatives for long-term projects.

Resource Conservation and Recovery Act (RCRA) - a federal law that established a regulatory system to track hazardous substances from the time of generation to disposal. The law requires safe and secure procedures to be used in treating, transporting, storing and disposing of hazardous substances. RCRA is designed to prevent new, uncontrolled hazardous waste sites.

Continued on page 9.

GLOSSARY

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Slurry-phase bioreactor - a system in which soil or sludge is combined with water to form a slurry. This slurry is then biodegraded aerobically (with air) using a self-contained reactor. Slurry biodegradation is one of the biodegradation methods for treating high concentrations of soluble organic contaminants in soils and sludges. The two main objectives of this technology is to detroy the organic contaminant, and to reduce the volume of contaminated material.

Slurry wall - a ground-water barrier formed by injecting low-permeable material, such as clay, into the ground along a line. Slurry walls are often used to slow down or redirect the flow of ground water.

Soil vapor extraction - a technology designed to pull air through soil containing hazardous substances into pipes that carry it to a treatment facility designed to remove the contaminants from the air, and discharge the treated air either into the environment or back into the soil.

Source - from where a hazardous substance is released into the environment; e.g., a spill area, a factory, or a portion of a landfill where hazardous substances were dumped.

Semi-volatile organic compound (SVOC) - a compound similar in nature to VOC's. SVOC's are less volatile than VOC's. SVOC's are used in the manufacture of drugs, cosmetics, soaps, paints, fertilizers, explosives, and many other products.

Still bottom - a mixture of compounds generally settled out of suspension from standing waste water.

Volatile organic compound (VOC) - a compound composed of carbon and hydrogen, characterized by a tendency to readily evaporate at room temperature. VOC's disapper more quickly from surface water than from ground water. Examples include lighter fluid, paint thinner, and components of gasoline.

Zone of contamination - an area in which contamination is found, either in the ground, the water, a landfill, or other defined area.

MAILING LIST

If you did not receive this fact sheet in the mail, you are not on the mailing list for the American Chemical Services Superfund site. To add your name, or to make a correction, please fill out this form and mail it to Karen Martin at the following address:

Karen Martin, PS-19J
Community Relations Coordinator
U.S. Environmental Protection Agency
77 West Jackson Boulevard
Chicago, Illinois 60604

NAME ____________________

ADDRESS ____________________

CITY, STATE, ZIP CODE ____________________

PHONE NUMBER ____________________

AFFILIATION ____________________

EPA

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Region 5

Office of Public Affairs (PS-19J)
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INSIDE: American Chemical Services Superfund Site Information

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